## What is claimed is:

**[Claim 1]** 1. A method for operating a wheel drive system of a hybrid vehicle, the hybrid vehicle having primary and secondary power sources, a power transfer unit adapted to drive a vehicle wheel and having a plurality of gear ratios, an electrical machine coupled to the primary power source and the power transfer unit and configured to be powered by the primary and/or secondary power sources, and a brake system adapted to inhibit rotation of the vehicle wheel when a brake pedal is actuated, the method comprising:

initiating a start sequence for the primary power source if the vehicle is stationary and the brake pedal is released, the start sequence including driving the primary power source with the electrical machine to attain a target speed;

determining a speed adjustment value based on an amount of vehicle acceleration requested by a driver if a gear ratio of the power transfer unit is selected and the primary power source is not started;

adjusting the target speed based on the speed adjustment value; and

modifying output of the electrical machine to maintain the target speed.

**[Claim 2]** 2. The method of claim 1 further comprising repeating the determining, adjusting, and modifying steps if the primary power source is not started, a gear ratio is engaged, and the amount of vehicle acceleration requested by the driver is greater than zero.

**[Claim 3]** 3. The method of claim 1 wherein the primary power source is started when the primary power source is able to maintain the target speed without assistance from the electrical machine.

**[Claim 4]** 4. The method of claim 1 wherein the amount of acceleration requested by the driver is based on a signal from an accelerator pedal position sensor.

**[Claim 5]** 5. The method of claim 1 wherein the step of determining whether the brake pedal is released is based on a signal from a brake pedal position sensor.

**[Claim 6]** 6. The method of claim 1 wherein increasing the target speed reduces an amount of time between an acceleration request and acceleration of the hybrid vehicle.

**[Claim 7]** 7. The method of claim 1 wherein the primary power source is an internal combustion engine.

**[Claim 8]** 8. The method of claim 1 wherein the secondary power source is a battery.

**[Claim 9]** 9. A method for controlling a wheel drive system of a hybrid electric vehicle during an engine start initiated while the hybrid electric vehicle is stationary, the hybrid electric vehicle having an engine, a voltage source, a power transfer unit adapted to drive a vehicle wheel and having a plurality of gear ratios, and a electrical machine adapted to drive the engine and/or the power transfer unit, the method comprising:

detecting whether a brake pedal is released;

initiating an engine start sequence if the brake pedal is released, the engine start sequence including powering the electrical machine with the voltage source to drive the engine at a target speed;

determining whether the engine is started;

determining whether a drive gear of the power transfer unit is engaged;

determining whether vehicle acceleration is requested;

selecting a speed adjustment value;

increasing the target speed by an amount equal to the speed adjustment value if vehicle acceleration is requested, a drive gear is engaged, and the engine is not started;

adjusting output of the electrical machine to maintain the target speed; and

repeating the determining, selecting, increasing, and adjusting steps until the engine is started.

**[Claim 10]** 10. The method of claim 9 wherein the engine is started when the engine is able to maintain the target speed without assistance from the electrical machine.

**[Claim 11]** 11. The method of claim 9 wherein the determining, selecting, increasing, and adjusting steps are not repeated if the drive gear is not engaged or if vehicle acceleration is not requested.

**[Claim 12]** 12. The method of claim 9 wherein a drive gear is engaged when one of the plurality of gear ratios configured to transmit torque from the electrical machine to the vehicle wheel is selected.

**[Claim 13]** 13. The method of claim 9 wherein the speed adjustment value is based on an amount of vehicle acceleration demanded by the driver.

**[Claim 14]** 14. The method of claim 9 wherein the step of determining whether vehicle acceleration is requested is based on a signal from an accelerator pedal position sensor and the step of determining whether the brake pedal is released is based on a signal from a brake pedal position sensor.

**[Claim 15]** 15. A method for starting an engine of a hybrid electric vehicle, the hybrid electric vehicle having an engine, a voltage source, a power transfer unit adapted to drive a vehicle wheel and having a plurality of gear ratios, a starter-alternator selectively coupled to the engine via a first clutch and adapted to drive the power transfer unit, the method comprising:

determining whether the hybrid electric vehicle is stationary;

determining whether a brake pedal is released;

initiating an engine start sequence if the hybrid electric vehicle is stationary and the brake pedal is released, the engine start sequence including:

powering the starter-alternator with the voltage source to attain a target rotational speed;

engaging the first clutch to provide torque to the engine;

providing fuel and air to the engine; and

combusting fuel in the engine;

assessing whether vehicle acceleration is requested by a driver;

increasing the target rotational speed if vehicle acceleration is requested by the driver;

adjusting voltage provided to the starter-alternator to maintain the target rotational speed; and

repeating the assessing, increasing, and adjusting steps until the engine is started.

**[Claim 16]** 16. The method of claim 15 wherein the engine is started when the engine maintains the target rotational speed without torque from the starter-alternator.

**[Claim 17]** 17. The method of claim 15 wherein the step of assessing whether vehicle acceleration is requested by the driver is based on a signal from an accelerator pedal position sensor.

**[Claim 18]** 18. The method of claim 15 wherein the step of determining whether the brake pedal is released is based on a signal from a brake pedal position sensor.

**[Claim 19]** 19. The method of claim 15 wherein the step of assessing whether vehicle acceleration is requested further comprises determining whether a power transfer unit gear ratio is engaged.

**[Claim 20]** 20. The method of claim 19 wherein the target rotational speed is increased by an amount based on a signal from an accelerator pedal position sensor if vehicle acceleration is requested and a power transfer unit gear ratio is engaged.